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SEQUENCE LISTING

<110> Allen, Steve
Lee, Jian Ming

<120> Plant Protein Kinases

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<140> US 09/854,731
<141> 2001-05-14

<150> US 60/092,438
<151> 1998-07-10

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<151> 1999-07-02

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Arg Leu Gly Gln Gly Gln Phe Gly Thr Thr Tyr Leu Cys Val Glu Arg
        35                  40                  45

Ala Thr Gly Lys Glu Phe Ala Cys Lys Ser Ile Leu Lys Xaa Leu Val
    50                  55                  60

Thr Asp Asp Asp Val Glu Asp Val Arg Arg Glu Ile Gln Ile Met His
65                  70                  75                  80

His Leu Ala Gly His Pro Asn Val Ile Ser Ile Arg Gly Ala Tyr Glu
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Asp Ala Val Ala Val
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<211> 2374
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<213> Oryza sativa

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2

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            20                  25                  30

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        35                  40                  45

Val Gly Thr Pro Arg Arg Arg Gly Ser Lys Ser Gly Ser Thr Thr Pro
    50                  55                  60

Gly His Gln Thr Pro Gly Val Ala Trp Pro Ser Pro Tyr Pro Ser Gly
65                  70                  75                  80

Gly Ala Ser Pro Leu Pro Ala Gly Val Ser Pro Ser Pro Ala Arg Ser
                85                  90                  95

Thr Pro Arg Arg Phe Phe Lys Arg Pro Phe Pro Pro Ser Pro Ala
            100                 105                 110

Lys His Ile Lys Ala Thr Leu Ala Lys Arg Leu Gly Gly Gly Lys Pro
        115                 120                 125

Lys Glu Gly Thr Ile Pro Glu Glu Gly Gly Val Gly Ala Gly Gly Gly
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3

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Gly Gly Gly Ala Ala Asp Gly Ala Glu Thr Glu Arg Pro Leu Asp Lys
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Thr Phe Gly Phe Ser Lys Asn Phe Gly Ala Lys Tyr Glu Leu Gly Lys
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Glu Val Gly Arg Gly His Phe Gly His Thr Cys Ser Ala Val Val Lys
                180                 185                 190

Lys Gly Glu Tyr Lys Gly Gln Thr Val Ala Val Lys Ile Ile Ala Lys
                195                 200                 205

Ala Lys Met Thr Thr Ala Ile Ser Ile Glu Asp Val Arg Arg Glu Val
210                     215                 220

Lys Ile Leu Arg Ala Leu Ser Gly His Asn Asn Leu Val Lys Phe Tyr
225                     230                 235                 240

Asp Ala Cys Glu Asp Gly Leu Asn Val Tyr Ile Val Met Glu Leu Cys
                245                 250                 255

Glu Gly Gly Glu Leu Leu Asp Arg Ile Leu Ala Arg Gly Gly Arg Tyr
                260                 265                 270

Thr Glu Glu Asp Ala Lys Ala Ile Val Val Gln Ile Leu Ser Val Val
                275                 280                 285

Ala Phe Cys His Leu Gln Gly Val Val His Arg Asp Leu Lys Pro Glu
                290                 295                 300

Asn Phe Leu Phe Thr Thr Arg Asp Glu Asn Ala Pro Met Lys Leu Ile
305                     310                 315                 320

Asp Phe Gly Leu Ser Asp Phe Ile Arg Pro Asp Glu Arg Leu Asn Asp
                325                 330                 335

Ile Val Gly Ser Ala Tyr Tyr Val Ala Pro Glu Val Leu His Arg Ser
                340                 345                 350

Tyr Ser Met Glu Ala Asp Ile Trp Ser Ile Gly Val Ile Thr Tyr Ile
                355                 360                 365

Leu Leu Cys Gly Ser Arg Pro Phe Trp Ala Arg Thr Glu Ser Gly Ile
                370                 375                 380

Phe Arg Ser Val Leu Arg Ala Asp Pro Asn Phe Asp Asp Ser Pro Trp
385                     390                 395                 400

Pro Thr Val Ser Ala Glu Ala Lys Asp Phe Val Lys Arg Phe Leu Asn
                405                 410                 415

Lys Asp Tyr Arg Lys Arg Met Thr Ala Val Gln Ala Leu Thr His Pro
                420                 425                 430

Trp Leu Arg Asp Glu Gln Arg Gln Ile Pro Leu Asp Ile Leu Ile Phe
                435                 440                 445

Arg Leu Ile Lys Gln Tyr Leu Arg Ala Thr Pro Leu Lys Arg Leu Ala
                450                 455                 460
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4

B13

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Leu Lys Ala Leu Ser Lys Ala Leu Arg Glu Asp Glu Leu Leu Tyr Leu
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Lys Leu Gln Phe Lys Leu Leu Glu Pro Arg Asp Gly Phe Val Ser Leu
                485             490             495

Asp Asn Phe Arg Thr Ala Leu Thr Arg Tyr Leu Thr Asp Ala Met Lys
            500             505             510

Glu Ser Arg Val Leu Glu Phe Leu His Ala Leu Glu Pro Leu Ala Tyr
            515             520             525

Arg Arg Met Asp Phe Glu Glu Phe Cys Ala Ala Ala Ile Ser Pro Tyr
    530             535             540

Gln Leu Glu Ala Leu Glu Arg Trp Glu Glu Ile Ala Gly Thr Ala Phe
545             550             555             560

Gln Gln Phe Glu Gln Glu Gly Asn Arg Val Ile Ser Val Glu Glu Leu
            565             570             575

Ala Gln Glu Leu Asn Leu Ala Pro Thr His Tyr Ser Ile Val Gln Asp
            580             585             590

Trp Ile Arg Lys Ser Asp Gly Lys Leu Asn Phe Leu Gly Phe Thr Lys
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Phe Leu His Gly Val Thr Ile Arg Gly Ser Asn Thr Arg Arg His
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            20              25              30

Pro Pro Ser Pro Ala Lys His Ile Arg Ala Leu Leu Ala Arg Xaa His
        35              40              45

Gly Ser Val Lys Pro Asn Glu Ala Ser Ile Pro Glu Ala Ser Xaa Cys
    50              55              60

Glu Leu Gly Leu Asp Lys Ser Phe Gly Phe Ala Lys Gln Phe Ser Ala
65              70              75                      80

His Tyr Glu Leu Ser Asp Glu Xaa Gly Arg Gly His Phe Gly Tyr Thr
                85              90                      95

Cys Ser Ala Lys Gly Lys Lys Gly Ala Phe Lys Gly Leu Asn Val Ala
            100             105             110

Val Lys Val Ile Pro Lys Ala Lys Met Thr Thr Ala Ile Ala Ile Glu
        115             120             125

Asp Val Arg Arg Glu Val Lys Ile Leu Arg Ala Leu Thr Gly His Lys
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Asn Leu Val Gln Phe Tyr Glu Ala Tyr Glu Asp Asp Asp
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ggatctgaaa ccagagaatt ttctattctc atcgaaggag gaaaactcac ccttgaaggt  180
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7

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tgttggagca ttggagtaat tgcctacatt ttgcttttgt gggaaccgac tttcctgggg 360
cacccacaga atccaggaat attcccagct tcccttaaag caaaaccaat tttgatgaag 420
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            20                  25                  30

His Leu Gln Gly Val Val His Arg Asp Leu Lys Pro Glu Asn Phe Leu
            35                  40                  45

Phe Ser Ser Lys Glu Glu Asn Ser Pro Leu Lys Val Ile Asp Phe Gly
    50                  55                  60

Leu Ser Asp Phe Val Lys Pro Asp Glu Arg Leu Asn Asp Ile Val Gly
65                  70                  75                  80

Ser Ala Tyr Tyr Val Ala Xaa Glu Val Leu His Arg Ser Tyr Gly Thr
                85                  90                  95

Glu Gly Asp Met Xaa Ser Ile Gly Val Ile Ala Tyr Ile Leu Leu
            100                 105                 110
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<213> Zea mays

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8

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             20                  25                  30

Met Ser Ile Arg Asp Asp Lys Asp Val Glu Asp Ile Val Val Asn Gly
         35                  40                  45

Asn Gly Ala Glu Pro Gly His Ile Ile Val Thr Ser Ile Asp Gly Arg
     50                  55                  60

Asn Gly Gln Ala Lys Gln Thr Ile Ser Tyr Met Ala Glu Arg Val Val
 65                  70                  75                  80

Gly His Gly Ser Phe Gly Thr Val Phe Gln Ala Lys Cys Leu Glu Thr
                 85                  90                  95

Gly Glu Thr Val Ala Ile Lys Lys Val Leu Gln Asp Lys Arg Tyr Lys
                100                 105                 110

Asn Arg Glu Leu Gln Thr Met Arg Val Leu Asp His Pro Asn Val Val
            115                 120                 125

Ala Leu Lys His Cys Phe Phe Ser Lys Thr Glu Lys Glu Glu Leu Tyr
        130                 135                 140

Leu Asn Leu Val Leu Glu Tyr Val Pro Glu Thr Ala His Arg Val Ile
145                 150                 155                 160

Lys His Tyr Asn Lys Met Asn Gln Arg Met Pro Leu Ile Tyr Ala Lys
                165                 170                 175

Leu Tyr Met Tyr Gln Ile Cys Arg Ala Leu Ala Tyr Ile His Asn Ser
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9

B 13

|  |  | 180 |  |  |  | 185 |  |  |  | 190 |  |  |  |
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         195                     200                         205

Pro His Thr His Gln Leu Lys Leu Cys Asp Phe Gly Ser Ala Lys Val
210                      215                  220

Leu Val Lys Gly Glu Pro Asn Ile Ser Tyr Ile Cys Ser Arg Tyr Tyr
225                  230                235                240

Arg Ala Pro Glu Leu Ile Phe Gly Ala Thr Glu Tyr Thr Thr Ala Ile
              245                 250                255

Asp Val Gly Ser Ala Gly Cys Val Leu Ala Glu Leu Leu Leu Gly Gln
          260                265                270

Pro Leu Phe Pro Gly Glu Ser Gly Val Asp Gln Leu Val Glu Ile Ile
        275                280                285

Lys Val Leu Gly Thr Pro Thr Arg Glu Glu Ile Lys Cys Met Asn Pro
       290              295                300

Asn Tyr Thr Glu Phe Lys Phe Pro Gln Ile Lys Ala His Pro Trp His
305                  310              315              320

Lys Ile Phe His Lys Arg Met Pro Ala Glu Ala Val Asp Leu Val Ser
        325                330                335

Arg Leu Leu Gln Tyr Ser Pro Lys Leu Arg Ser Thr Ala Leu Glu Ala
        340                345              350

Leu Val His Pro Phe Phe Asp Glu Leu Arg Asp Pro Asn Thr Arg Leu
        355              360              365

Pro Asn Gly Arg Phe Leu Pro Pro Leu Phe Asn Phe Lys Pro His Glu
      370                375              380

Leu Lys Asn Val Pro Ala Asp Phe Met Val Lys Leu Val Pro Glu His
385              390              395              400

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<223> n = a, c, g or t

<220>
<221> unsure
<222> (506)
<223> n = a, c, g or t

<220>
<221> unsure
<222> (521)

B

<223> n = a, c, g or t

<400> 11
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ggangaggcc gcggctagcg agcgagcgag agagagggga gaagaagagg tgggacagcc  60
gggagatcca tccctgtgga gaggagggag ggaggaagga ggcgttggag gaggagaggt 120
tgaccgatag atccattgcg gagttgagtg ttgatgcaaa gctgattcgc catcgtttag 180
ctttttataa gagatggggtt cagtangggt tgcgccgtct gggttaaaca acagcagtan 240
caccagcatg ggtgctgaga agttgcctga tcagatgcat gatctgaaga taagggacga 300
taaggaantt gaacgactat tattaacngc aanggaacag aaancggcca cataattgtc 360
acaactactg gnggcanaaa tggtcanccg aaacanacag ttagctacat ggctgancgt 420
attgtagggc aaggttcatt tgggattgtc ttccaagcaa aattctggag acaaggtgag 480
acagttgcta tcaagaangt tctcangata aacgctacaa naaccgttag cctcaaacca 540
tgcgccttct tgacaaccaa atgttgttac tcctgaagca tgtt             584
```

<210> 12
<211> 105
<212> PRT
<213> Oryza sativa

<220>
<221> UNSURE
<222> (5)
<223> Xaa = ANY AMINO ACID

<220>
<221> UNSURE
<222> (16)
<223> Xaa = ANY AMINO ACID

<220>
<221> UNSURE
<222> (39)
<223> Xaa = ANY AMINO ACID

<220>
<221> UNSURE
<222> (41)..(42)
<223> Xaa = ANY AMINO ACID

<220>
<221> UNSURE
<222> (47)..(48)
<223> Xaa = ANY AMINO ACID

<220>
<221> UNSURE
<222> (52)
<223> Xaa = ANY AMINO ACID

<220>
<221> UNSURE
<222> (63)
<223> Xaa = ANY AMINO ACID

<220>
<221> UNSURE
<222> (66)
<223> Xaa = ANY AMINO ACID

<220>
<221> UNSURE

B 13

<222> (69)
<223> Xaa = ANY AMINO ACID

<220>
<221> UNSURE
<222> (76)
<223> Xaa = ANY AMINO ACID

<220>
<221> UNSURE
<222> (103)
<223> Xaa = ANY AMINO ACID

<400> 12
Met Gly Ser Val Xaa Val Ala Pro Ser Gly Leu Asn Asn Ser Ser Xaa
 1               5                  10                  15

Thr Ser Met Gly Ala Glu Lys Leu Pro Asp Gln Met His Asp Leu Lys
             20                  25                  30

Ile Arg Asp Asp Lys Glu Xaa Glu Xaa Xaa Thr Ile Ile Asn Xaa Xaa
         35                  40                  45

Gly Thr Glu Xaa Gly His Ile Ile Val Thr Thr Thr Gly Gly Xaa Asn
     50                  55                  60

Gly Xaa Pro Lys Xaa Thr Val Ser Tyr Met Ala Xaa Arg Ile Val Gly
 65                  70                  75                  80

Gln Gly Ser Phe Gly Ile Val Phe Gln Ala Lys Phe Trp Arg Gln Gly
                 85                  90                  95

Glu Thr Val Ala Ile Lys Xaa Val Leu
             100                 105

<210> 13
<211> 1429
<212> DNA
<213> Glycine max

<220>
<221> unsure
<222> (1202)
<223> n = a, c, g or t

<220>
<221> unsure
<222> (1237)
<223> n = a, c, g or t

<220>
<221> unsure
<222> (1297)
<223> n = a, c, g or t

<220>
<221> unsure
<222> (1340)
<223> n = a, c, g or t

<220>

B

<221> unsure
<222> (1376)
<223> n = a, c, g or t

<220>
<221> unsure
<222> (1410)
<223> n = a, c, g or t

<220>
<221> unsure
<222> (1416)
<223> n = a, c, g or t

<400> 13
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gcacaccaca caaaaaagca aaacagagag aacaactgtt actcacacac gccatgggta   60
aatgaatggt ttttgagcaa cagcagttaa aagagaaaag ggattcagcg aagatgacat  120
cggttggtgt ggcaccaact tcgggtttga gagaagccag tgggcatgga gcagcaggtg  180
ttgatagatt gccagaggag atgaacgata tgaaaattag ggatgataga gaaatggaag  240
ccacagttgt tgatggcaac ggaacggaga caggacatat cattgtgact accattgggg  300
gtagaaatgg tcagcccaag cagactataa gctacatggc agagcgtgtt gtagggcatg  360
gatcatttgg agttgtcttc caggctaagt gcttggaaac cggtgaaact gtggctatca  420
aaaaggttct tcaagacaag aggtacaaga accgggagct gcaaacaatg cgccttcttg  480
accacccaaa tgtcgttgct ttgaagcact gtttcttttc aaccactgaa aaggatgaac  540
tataccttaa tttggttctc gaatatgttc ctgaaacagt taatcgggtg ataaaacatt  600
acaacaagtt taaccaaagg atgccactga tatatgtgaa actctataca taccagatct  660
ttagggcgtt atcttatatt catcgttgta ttggagtctg ccatcgggat atcaagcctc  720
aaaatctatt ggtcaatcca cacactcacc aggttaaatt atgtgacttt ggaagtgcaa  780
aggttttggt aaaaggcgaa ccaaatatat catacatatg ttctagatac tatagagcac  840
ctgagctcat atttggcgca actgaatata ctacagccat tgacgtctgg tctgttggat  900
gtgttttagc tgagctgctg cttggacagc ctctgttccc tggtgagagt ggagttgatc  960
aacttgttga gatcatcaag gttctgggca ctccaacaag ggaagagatt aagtgcatga 1020
accctaatta tacagaattt aaattcccac agattaaagc acatccatgg cacaagatct 1080
tccataagcg catgcctcca gaggctgttg atttggtatc aagactacta caatactccc 1140
ctaacttgcg gtgcacagtt ttagatgcct tggacgcacc ctttcctttg gacgaattcc 1200
gngatccaaa tcctcgcttg ccaaatgggc cgatccntcc aacaactatt aattcaaacc 1260
catgaactga aagtgtccaa ctgagatttg gggaaantgg tcaaagcatg caaggaacaa 1320
tgccgtttct ggcttgtaan tgtacaaaac tgaagtgttg ttcatataga atgcgngctt 1380
cctcattaaa ggaattgtgg accttatgan tcgttnccgt aacagttag             1429
```

<210> 14
<211> 399
<212> PRT
<213> Glycine max

<220>
<221> UNSURE
<222> (391)
<223> Xaa = ANY AMINO ACID

<400> 14

Met Val Phe Glu Gln Gln Gln Leu Lys Glu Lys Arg Asp Ser Ala Lys
  1               5                  10                  15

Met Thr Ser Val Gly Val Ala Pro Thr Ser Gly Leu Arg Glu Ala Ser
             20                  25                  30

Gly His Gly Ala Ala Gly Val Asp Arg Leu Pro Glu Glu Met Asn Asp
          35                  40                  45

Met Lys Ile Arg Asp Asp Arg Glu Met Glu Ala Thr Val Val Asp Gly

```
              50                    55                    60
Asn Gly Thr Glu Thr Gly His Ile Ile Val Thr Thr Ile Gly Gly Arg
    65                  70                  75                  80

Asn Gly Gln Pro Lys Gln Thr Ile Ser Tyr Met Ala Glu Arg Val Val
                85                  90                  95

Gly His Gly Ser Phe Gly Val Val Phe Gln Ala Lys Cys Leu Glu Thr
            100                 105                 110

Gly Glu Thr Val Ala Ile Lys Lys Val Leu Gln Asp Lys Arg Tyr Lys
            115                 120                 125

Asn Arg Glu Leu Gln Thr Met Arg Leu Leu Asp His Pro Asn Val Val
    130                 135                 140

Ala Leu Lys His Cys Phe Phe Ser Thr Thr Glu Lys Asp Glu Leu Tyr
145                 150                 155                 160

Leu Asn Leu Val Leu Glu Tyr Val Pro Glu Thr Val Asn Arg Val Ile
                165                 170                 175

Lys His Tyr Asn Lys Phe Asn Gln Arg Met Pro Leu Ile Tyr Val Lys
            180                 185                 190

Leu Tyr Thr Tyr Gln Ile Phe Arg Ala Leu Ser Tyr Ile His Arg Cys
        195                 200                 205

Ile Gly Val Cys His Arg Asp Ile Lys Pro Gln Asn Leu Leu Val Asn
    210                 215                 220

Pro His Thr His Gln Val Lys Leu Cys Asp Phe Gly Ser Ala Lys Val
225                 230                 235                 240

Leu Val Lys Gly Glu Pro Asn Ile Ser Tyr Ile Cys Ser Arg Tyr Tyr
            245                 250                 255

Arg Ala Pro Glu Leu Ile Phe Gly Ala Thr Glu Tyr Thr Thr Ala Ile
            260                 265                 270

Asp Val Trp Ser Val Gly Cys Val Leu Ala Glu Leu Leu Leu Gly Gln
        275                 280                 285

Pro Leu Phe Pro Gly Glu Ser Gly Val Asp Gln Leu Val Glu Ile Ile
    290                 295                 300

Lys Val Leu Gly Thr Pro Thr Arg Glu Glu Ile Lys Cys Met Asn Pro
305                 310                 315                 320

Asn Tyr Thr Glu Phe Lys Phe Pro Gln Ile Lys Ala His Pro Trp His
                325                 330                 335

Lys Ile Phe His Lys Arg Met Pro Pro Glu Ala Val Asp Leu Val Ser
            340                 345                 350

Arg Leu Leu Gln Tyr Ser Pro Asn Leu Arg Cys Thr Val Leu Asp Ala
        355                 360                 365

Leu Asp Ala Pro Phe Pro Leu Asp Glu Phe Arg Asp Pro Asn Pro Arg
    370                 375                 380
```

15

Leu Pro Asn Gly Pro Ile Xaa Pro Thr Thr Ile Asn Ser Asn Pro
385               390               395

<210> 15
<211> 1673
<212> DNA
<213> Triticum aestivum

<220>
<221> unsure
<222> (1349)
<223> n = a, c, g or t

<400> 15
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aagtgtgagc ccaccgtgtc cgccccattc acgccctagc cacatggagc atccggcgcc   60
ggcgccggag ccgatgctgc tcgacgagca gcccccacc gcagtcgcct gcgagaagaa  120
gcagcaggat ggcgaggcgc cgtatgcgga ggggaacgac gccatgaccg gtcacatcat  180
ctccaccacc atcggcggca agaacggcga gcccaagcag acgattagct acatggcgga  240
gcgcgttgtg ggcactggtt cgtttggcat cgtctttcag gctaaatgcc tggaaaccgg  300
ggagatggtg ggcattaaga aggtactgca ggacagacgg tacaagaacc gtgagctgca  360
gcttatgcgt tcgatgatcc attccaatgt tgtctccctc aagcactgct tcttctcaac  420
cacaagtaga gatgagctgt tcctgaacct tgtcatggag tatgtcccgg agacgctata  480
ccgcgtgctt aagcactaca gtaatgccaa ccaggggatg ccgcttatct atgtcaagct  540
ttacatgtat cagctttta gagggctagc ttatgttcat actgttccag gagtttgcca  600
cagggatgtg aaaccacaaa atgtttggt tgatcctcta acccatcaag tcaagatctg  660
tgactttgga agtgcaaaag ttctggtacc tggtgaaccc aacatagcat acatatgctc  720
tcgctactat cgtgctcctg agctcatatt tggtgcaact gaatatacaa cttcaataga  780
catatggtca gctggatgtg ttcttgcaga gctacttctt ggtcagcctc tgtttccagg  840
agagactgcg gttgatcagc tagtggagat tatcaaggtt cttggtactc caacccgtga  900
ggaaattcgg tgcatgaacc ccaactatac cgagttcagg tttcctcaga ttaaggctca  960
tccttggcac aagattttcc acaagagaat gcccgctgaa gctatagatc ttgcctcccg 1020
ccttctccag tattcaccaa atctacgttg cactgctctt gatgcatgtg cacattcctt 1080
ctttgatgag ctacgtgagc cgaatgcacg cttgccgaat ggccgcccat tccctcctct 1140
gttcaacttc aaacctgaac tagcgaacgc ctctccagag ctcatcaaca ggcttgttcc 1200
ggaacatgtt cgacggcaaa atggccccaa cttcgcccat gctgggagct aaacggggcg 1260
cgcccgcatc gcccatattt ttgtttgtcc gccatcatcg aagaatcaat ctctccccta 1320
aatcctgagg agagaccgat caagtgcant gccagtgcca gtgaaagaag tacaactatg 1380
taaattacct gaccttggaa gaatcgttgt tgttgttgcc ggtgccggcc atgtttaagt 1440
acatggcggc acatgttggt tgagttgtta cttattatta agtaggtaag agcaatgatg 1500
taggaggtgg agacatatgt taatgctagg tctgtgacct gttttaagta cattttgta 1560
atgcttggta gtggtactgt aatgcggcaa tagctgctcc atgttttgtc ccttgtccct 1620
gatgtaaatg tcgtcgtcct gcagcaaaaa aaaaaaaaa aaaaaaaaa aaa         1673
```

<210> 16
<211> 402
<212> PRT
<213> Triticum aestivum

<400> 16
Met Glu His Pro Ala Pro Ala Pro Glu Pro Met Leu Leu Asp Glu Gln
 1               5               10               15

Pro Pro Thr Ala Val Ala Cys Glu Lys Lys Gln Gln Asp Gly Glu Ala
            20               25               30

Pro Tyr Ala Glu Gly Asn Asp Ala Met Thr Gly His Ile Ile Ser Thr
        35               40               45

Thr Ile Gly Gly Lys Asn Gly Glu Pro Lys Gln Thr Ile Ser Tyr Met
    50               55               60

Ala Glu Arg Val Val Gly Thr Gly Ser Phe Gly Ile Val Phe Gln Ala
65                    70                75                      80

Lys Cys Leu Glu Thr Gly Glu Met Val Gly Ile Lys Lys Val Leu Gln
                85              90                  95

Asp Arg Arg Tyr Lys Asn Arg Glu Leu Gln Leu Met Arg Ser Met Ile
            100             105             110

His Ser Asn Val Val Ser Leu Lys His Cys Phe Phe Ser Thr Thr Ser
        115             120             125

Arg Asp Glu Leu Phe Leu Asn Leu Val Met Glu Tyr Val Pro Glu Thr
    130             135             140

Leu Tyr Arg Val Leu Lys His Tyr Ser Asn Ala Asn Gln Gly Met Pro
145             150             155             160

Leu Ile Tyr Val Lys Leu Tyr Met Tyr Gln Leu Phe Arg Gly Leu Ala
            165             170             175

Tyr Val His Thr Val Pro Gly Val Cys His Arg Asp Val Lys Pro Gln
        180             185             190

Asn Val Leu Val Asp Pro Leu Thr His Gln Val Lys Ile Cys Asp Phe
        195             200             205

Gly Ser Ala Lys Val Leu Val Pro Gly Glu Pro Asn Ile Ala Tyr Ile
210             215             220

Cys Ser Arg Tyr Tyr Arg Ala Pro Glu Leu Ile Phe Gly Ala Thr Glu
225             230             235             240

Tyr Thr Thr Ser Ile Asp Ile Trp Ser Ala Gly Cys Val Leu Ala Glu
            245             250             255

Leu Leu Leu Gly Gln Pro Leu Phe Pro Gly Glu Thr Ala Val Asp Gln
            260             265             270

Leu Val Glu Ile Ile Lys Val Leu Gly Thr Pro Thr Arg Glu Glu Ile
    275             280             285

Arg Cys Met Asn Pro Asn Tyr Thr Glu Phe Arg Phe Pro Gln Ile Lys
    290             295             300

Ala His Pro Trp His Lys Ile Phe His Lys Arg Met Pro Ala Glu Ala
305             310             315             320

Ile Asp Leu Ala Ser Arg Leu Leu Gln Tyr Ser Pro Asn Leu Arg Cys
            325             330             335

Thr Ala Leu Asp Ala Cys Ala His Ser Phe Phe Asp Glu Leu Arg Glu
            340             345             350

Pro Asn Ala Arg Leu Pro Asn Gly Arg Pro Phe Pro Pro Leu Phe Asn
        355             360             365

Phe Lys Pro Glu Leu Ala Asn Ala Ser Pro Glu Leu Ile Asn Arg Leu
    370             375             380

```
Val Pro Glu His Val Arg Arg Gln Asn Gly Pro Asn Phe Ala His Ala
385                 390                 395                 400

Gly Ser


<210> 17
<211> 639
<212> PRT
<213> Zea mays

<400> 17
Met Gly Asn Thr Cys Val Gly Pro Ser Ile Thr Met Asn Gly Phe Phe
 1               5                  10                  15

Gln Ser Val Ser Thr Ala Leu Trp Lys Thr Pro Gln Glu Gly Asp Ala
            20                  25                  30

Leu Pro Ala Ala Ala Asn Gly Pro Gly Gly Pro Ala Gly Ala Gly Ser
        35                  40                  45

Gln Ser Ala Leu Pro Lys Pro Ala Ser Asp Val His His Val Ala Val
    50                  55                  60

Gln Ser Glu Ala Pro Glu Pro Val Lys Ile Ala Ala Tyr His Ser Glu
65                  70                  75                  80

Pro Ala Pro Ala Val Arg Ser Glu Ala Pro Glu Pro Val Lys Ile Ala
                85                  90                  95

Ala Ser His Ser Glu Pro Ala Pro Met Ala Ala Lys Pro Gly Gly Ala
            100                 105                 110

Ala Ala Asn Ala Ser Pro Ser Pro Ser Pro Arg Pro Arg Pro Gln Val
        115                 120                 125

Lys Arg Val Ser Ser Ala Gly Leu Leu Leu Gly Ser Val Leu Arg Arg
    130                 135                 140

Lys Thr Glu Asn Leu Lys Asp Lys Tyr Ser Leu Gly Arg Arg Leu Gly
145                 150                 155                 160

Gln Gly Gln Phe Gly Thr Thr His Leu Cys Val Glu Arg Ala Thr Gly
            165                 170                 175

Lys Glu Leu Ala Cys Lys Ser Ile Leu Lys Arg Lys Leu Gly Ser Asp
        180                 185                 190

Asp Asp Val Glu Asp Val Arg Arg Glu Ile Gln Ile Met His His Leu
        195                 200                 205

Ala Gly His Pro Ser Val Val Gly Ile Arg Gly Ala Tyr Glu Asp Ala
    210                 215                 220

Val Ala Val His Leu Val Met Glu Leu Cys Gly Gly Gly Glu Leu Phe
225                 230                 235                 240

Asp Arg Ile Val Arg Arg Gly His Tyr Thr Glu Arg Lys Ala Ala Glu
            245                 250                 255

Leu Ala Arg Val Ile Val Gly Val Val Glu Ala Cys His Ser Met Gly
```

18

```
                 260                    265                    270
Val Met His Arg Asp Leu Lys Pro Glu Asn Phe Leu Phe Ala Asp His
        275                280                285

Ser Glu Glu Ala Ala Leu Lys Thr Ile Asp Phe Gly Leu Ser Ile Phe
        290                295                300

Phe Arg Pro Gly Gln Ile Phe Thr Asp Val Val Gly Ser Pro Tyr Tyr
305                     310                315                320

Val Ala Pro Glu Val Leu Lys Lys Arg Tyr Gly Pro Glu Ala Asp Val
                325                330                335

Trp Ser Ala Gly Val Ile Ile Tyr Ile Leu Leu Cys Gly Val Pro Pro
                340                345                350

Phe Trp Ala Glu Asn Glu Gln Gly Ile Phe Glu Glu Val Leu His Gly
                355                360                365

Arg Leu Asp Phe Glu Ser Glu Pro Trp Pro Ser Ile Ser Asp Gly Ala
        370                375                380

Lys Asp Leu Val Arg Arg Met Leu Val Arg Asp Pro Arg Lys Arg Leu
385                     390                395                400

Thr Ala His Glu Val Leu Arg His Pro Trp Val Gln Val Gly Gly Val
                405                410                415

Ala Pro Asp Arg Pro Leu Asp Ser Ala Val Leu Ser Arg Met Lys Gln
                420                425                430

Phe Ser Ala Met Asn Lys Leu Lys Lys Met Ala Leu Arg Val Ile Ala
        435                440                445

Glu Asn Leu Ser Glu Asp Glu Ile Ala Gly Leu Arg Glu Met Phe Lys
        450                455                460

Met Ile Asp Ala Asp Asn Ser Gly Gln Ile Thr Phe Glu Glu Leu Lys
465                     470                475                480

Val Gly Leu Glu Lys Val Gly Ala Asn Leu Gln Glu Ser Glu Ile Tyr
                485                490                495

Ala Leu Met Gln Ala Ala Asp Val Asp Asn Asn Gly Thr Ile Asp Tyr
                500                505                510

Gly Glu Phe Ile Ala Ala Thr Leu His Leu Asn Lys Val Glu Arg Glu
        515                520                525

Asp His Leu Phe Ala Ala Phe Gln Tyr Phe Asp Lys Asp Gly Ser Gly
        530                535                540

Tyr Ile Thr Ala Asp Glu Leu Gln Val Ala Cys Glu Glu Phe Gly Leu
545                     550                555                560

Gly Asp Val Gln Leu Glu Asp Leu Ile Gly Glu Val Asp Gln Asp Asn
                565                570                575

Asp Gly Arg Ile Asp Tyr Asn Glu Phe Val Ala Met Met Gln Lys Pro
                580                585                590
```

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B13

Thr Val Gly Gly Ser Arg Arg Arg Pro Ile Cys Arg Thr Ala Ser Ala
        595                 600                 605

Ser Gly Ser Ala Ser Gly Ser Gly Arg Arg Ser Gly Trp Pro Arg Pro
        610                 615                 620

Leu Cys Leu Trp Leu Pro Cys Cys Leu Arg Val Gly Val Asp Asp
625                 630                 635

<210> 18
<211> 625
<212> PRT
<213> Zea mays

<400> 18
Met Gly Gln Cys Tyr Gly Lys Ala Arg Gly Ala Ser Ser Arg Ala Asp
  1               5                 10                  15

His Asp Ala Asp Pro Ser Gly Ala Gly Ser Val Ala Pro Pro Ser Pro
            20                  25                  30

Leu Pro Ala Asn Gly Ala Pro Leu Pro Ala Thr Pro Arg Arg His Lys
        35                  40                  45

Ser Gly Ser Thr Thr Pro Val His His His Gln Ala Ala Thr Pro Gly
    50                  55                  60

Ala Ala Ala Trp Pro Ser Pro Tyr Pro Ala Gly Gly Ala Ser Pro Leu
65                  70                  75                  80

Pro Ala Gly Val Ser Pro Ser Pro Ala Arg Ser Thr Pro Arg Arg Phe
            85                  90                  95

Phe Lys Arg Pro Phe Pro Pro Pro Ser Pro Ala Lys His Ile Lys Ala
            100                 105                 110

Thr Leu Ala Lys Arg Leu Gly Gly Gly Lys Pro Lys Glu Gly Thr Ile
    115                 120                 125

Pro Glu Glu Gly Gly Ala Gly Ala Gly Ala Gly Ala Gly Ala Gly Ala
    130                 135                 140

Gly Ala Ala Val Gly Ala Ala Asp Ser Ala Glu Ala Asp Arg Pro Leu
145                 150                 155                 160

Asp Lys Thr Phe Gly Phe Ala Lys Asn Phe Gly Ala Lys Tyr Asp Leu
                165                 170                 175

Gly Lys Glu Val Gly Arg Gly His Phe Gly His Thr Cys Ser Ala Val
            180                 185                 190

Val Lys Lys Gly Glu His Lys Gly His Thr Val Ala Val Lys Ile Ile
        195                 200                 205

Ser Lys Ala Lys Met Thr Thr Ala Ile Ser Ile Glu Asp Val Arg Arg
    210                 215                 220

Glu Val Lys Ile Leu Lys Ala Leu Ser Gly His Asp Asn Leu Val Arg
225                 230                 235                 240

20

```
Phe Tyr Asp Ala Cys Glu Asp Ala Leu Asn Val Tyr Ile Val Met Glu
            245                 250             255

Leu Cys Glu Gly Gly Glu Leu Leu Asp Arg Ile Leu Ala Arg Gly Gly
            260             265             270

Arg Tyr Thr Glu Glu Asp Ala Lys Ala Ile Ile Val Gln Ile Leu Ser
            275             280             285

Val Val Ala Phe Cys His Leu Gln Gly Val Val His Arg Asp Leu Lys
            290             295             300

Pro Glu Asn Phe Leu Phe Thr Thr Arg Asp Glu Ser Ala Pro Met Lys
305                 310             315             320

Leu Ile Asp Phe Gly Leu Ser Asp Phe Ile Arg Pro Asp Glu Arg Leu
            325             330             335

Asn Asp Ile Val Gly Ser Ala Tyr Tyr Val Ala Pro Glu Val Leu His
            340             345             350

Arg Ser Tyr Ser Met Glu Ala Asp Ile Trp Ser Ile Gly Val Ile Thr
            355             360             365

Tyr Ile Leu Leu Cys Gly Ser Arg Pro Phe Trp Ala Arg Thr Glu Ser
            370             375             380

Gly Ile Phe Arg Ser Val Leu Arg Ala Asp Pro Asn Phe Asp Asp Ser
385                 390             395             400

Pro Trp Pro Ser Val Ser Ala Glu Ala Lys Asp Phe Val Lys Arg Phe
            405             410             415

Leu Asn Lys Asp Tyr Arg Lys Arg Met Thr Ala Val Gln Ala Leu Thr
            420             425             430

His Pro Trp Leu Arg Asp Glu Gln Arg Gln Ile Pro Leu Asp Ile Leu
            435             440             445

Ile Phe Arg Leu Val Lys Gln Tyr Leu Arg Ala Thr Pro Leu Lys Arg
    450             455             460

Leu Ala Leu Lys Ala Leu Ser Lys Ala Leu Ser Glu Asp Glu Leu Leu
465             470             475             480

Tyr Leu Arg Leu Gln Phe Lys Leu Leu Glu Pro Arg Asp Gly Phe Val
            485             490             495

Ser Leu Asp Asn Phe Arg Thr Ala Leu Thr Arg Tyr Ser Thr Asp Ala
            500             505             510

Met Arg Glu Ser Arg Val Leu Glu Phe Gln His Ala Leu Glu Pro Leu
            515             520             525

Ala Tyr Arg Lys Met Asp Phe Glu Glu Phe Cys Ala Ala Ala Ile Ser
    530             535             540

Pro Tyr Gln Leu Glu Ala Leu Glu Arg Trp Glu Glu Ile Ala Gly Thr
545             550             555             560

Ala Phe Gln His Phe Glu Gln Glu Gly Asn Arg Val Ile Ser Val Glu
```

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```
                565                    570                      575
Glu Leu Ala Gln Glu Leu Asn Leu Ala Pro Thr His Tyr Ser Ile Val
            580                  585              590

Gln Asp Trp Ile Arg Lys Ser Asp Gly Lys Leu Asn Phe Leu Gly Phe
        595                  600              605

Thr Lys Phe Leu His Gly Val Thr Ile Arg Gly Ser Asn Thr Arg Arg
    610                  615              620

His
625
```

<210> 19
<211> 576
<212> PRT
<213> Arabidopsis thaliana

<400> 19
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Met Gly Ile Cys His Gly Lys Pro Val Glu Gln Gln Ser Lys Ser Leu
  1               5               10              15

Pro Val Ser Gly Glu Thr Asn Glu Ala Pro Thr Asn Ser Gln Pro Pro
            20              25              30

Ala Lys Ser Ser Gly Phe Pro Phe Tyr Ser Pro Ser Pro Val Pro Ser
        35              40              45

Leu Phe Lys Ser Ser Pro Ser Val Ser Ser Ser Val Ser Ser Thr Pro
    50              55              60

Leu Arg Ile Phe Lys Arg Pro Phe Pro Pro Pro Ser Pro Ala Lys His
65              70              75              80

Ile Arg Ala Phe Leu Ala Arg Arg Tyr Gly Ser Val Lys Pro Asn Glu
            85              90              95

Val Ser Ile Pro Glu Gly Lys Glu Cys Glu Ile Gly Leu Asp Lys Ser
            100             105             110

Phe Gly Phe Ser Lys Gln Phe Ala Ser His Tyr Glu Ile Asp Gly Glu
        115             120             125

Val Gly Arg Gly His Phe Gly Tyr Thr Cys Ser Ala Lys Gly Lys Lys
    130             135             140

Gly Ser Leu Lys Gly Gln Glu Val Ala Val Lys Val Ile Pro Lys Ser
145             150             155             160

Lys Met Thr Thr Ala Ile Ala Ile Glu Asp Val Ser Arg Glu Val Lys
            165             170             175

Met Leu Arg Ala Leu Thr Gly His Lys Asn Leu Val Gln Phe Tyr Asp
        180             185             190

Ala Phe Glu Asp Asp Glu Asn Val Tyr Ile Val Met Glu Leu Cys Lys
        195             200             205

Gly Gly Glu Leu Leu Asp Lys Ile Leu Gln Arg Gly Gly Lys Tyr Ser
    210             215             220
```

Glu Asp Asp Ala Lys Lys Val Met Val Gln Ile Leu Ser Val Val Ala
225                     230                     235                     240

Tyr Cys His Leu Gln Gly Val Val His Arg Asp Leu Lys Pro Glu Asn
                    245                     250                     255

Phe Leu Phe Ser Thr Lys Asp Glu Thr Ser Pro Leu Lys Ala Ile Asp
                    260                     265                     270

Phe Gly Leu Ser Asp Tyr Val Lys Pro Asp Glu Arg Leu Asn Asp Ile
                275                     280                     285

Val Gly Ser Ala Tyr Tyr Val Ala Pro Glu Val Leu His Arg Thr Tyr
            290                     295                     300

Gly Thr Glu Ala Asp Met Trp Ser Ile Gly Val Ile Ala Tyr Ile Leu
305                     310                     315                     320

Leu Cys Gly Ser Arg Pro Phe Trp Ala Arg Thr Glu Ser Gly Ile Phe
                    325                     330                     335

Arg Ala Val Leu Lys Ala Glu Pro Asn Phe Glu Glu Ala Pro Trp Pro
                340                     345                     350

Ser Leu Ser Pro Glu Ala Val Asp Phe Val Lys Arg Leu Leu Asn Lys
                355                     360                     365

Asp Tyr Arg Lys Arg Leu Thr Ala Ala Gln Ala Leu Cys His Pro Trp
            370                     375                     380

Leu Val Gly Ser His Glu Leu Lys Ile Pro Ser Asp Met Ile Ile Tyr
385                     390                     395                     400

Lys Leu Val Lys Val Tyr Ile Met Ser Thr Ser Leu Arg Lys Ser Ala
                    405                     410                     415

Leu Ala Ala Leu Ala Lys Thr Leu Thr Val Pro Gln Leu Ala Tyr Leu
                420                     425                     430

Arg Glu Gln Phe Thr Leu Leu Gly Pro Ser Lys Asn Gly Tyr Ile Ser
            435                     440                     445

Met Gln Asn Tyr Lys Thr Ala Ile Leu Lys Ser Ser Thr Asp Ala Met
    450                     455                     460

Lys Asp Ser Arg Val Phe Asp Phe Val His Met Ile Ser Cys Leu Gln
465                     470                     475                     480

Tyr Lys Lys Leu Asp Phe Glu Glu Phe Cys Ala Ser Ala Leu Ser Val
                485                     490                     495

Tyr Gln Leu Glu Ala Met Glu Thr Trp Glu Gln His Ala Arg Arg Ala
            500                     505                     510

Tyr Glu Leu Phe Glu Lys Asp Gly Asn Arg Pro Ile Met Ile Glu Glu
            515                     520                     525

Leu Ala Ser Glu Leu Gly Leu Gly Pro Ser Val Pro Val His Val Val
    530                     535                     540

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Leu Gln Asp Trp Ile Arg His Ser Asp Gly Lys Leu Ser Phe Leu Gly
545                 550                 555                 560

Phe Val Arg Leu Leu His Gly Val Ser Ser Arg Thr Leu Gln Lys Ala
                565                 570                 575


<210> 20
<211> 405
<212> PRT
<213> Arabidopsis thaliana

<400> 20
Met Ala Ser Val Gly Ile Ala Pro Asn Pro Gly Ala Arg Asp Ser Thr
 1               5                   10                  15

Gly Val Asp Lys Leu Pro Glu Glu Met Asn Asp Met Lys Ile Arg Asp
                20                  25                  30

Asp Lys Glu Met Glu Ala Thr Val Val Asp Gly Asn Gly Thr Glu Thr
          35                  40                  45

Gly His Ile Ile Val Thr Thr Ile Gly Gly Arg Asn Gly Gln Pro Lys
       50                  55                  60

Gln Thr Ile Ser Tyr Met Ala Glu Arg Val Val Gly His Gly Ser Phe
 65                 70                  75                  80

Gly Val Val Phe Gln Ala Lys Cys Leu Glu Thr Gly Glu Thr Val Ala
                85                  90                  95

Ile Lys Lys Val Leu Gln Asp Arg Arg Tyr Lys Asn Arg Glu Leu Gln
             100                 105                 110

Thr Met Arg Leu Leu Asp His Pro Asn Val Val Ser Leu Lys His Cys
          115                 120                 125

Phe Phe Ser Thr Thr Glu Lys Asp Glu Leu Tyr Leu Asn Leu Val Leu
          130                 135                 140

Glu Tyr Val Pro Glu Thr Val His Arg Val Ile Lys His Tyr Asn Lys
145                 150                 155                 160

Leu Asn Gln Arg Met Pro Leu Ile Tyr Val Lys Leu Tyr Thr Tyr Gln
                165                 170                 175

Ile Phe Arg Ala Leu Ser Tyr Ile His Arg Cys Ile Gly Val Cys His
             180                 185                 190

Arg Asp Ile Lys Pro Gln Asn Leu Leu Val Asn Pro His Thr His Gln
          195                 200                 205

Val Lys Leu Cys Asp Phe Gly Ser Ala Lys Val Leu Val Lys Gly Glu
    210                 215                 220

Pro Asn Ile Ser Tyr Ile Cys Ser Arg Tyr Tyr Arg Ala Pro Glu Leu
225                 230                 235                 240

Ile Phe Gly Ala Thr Glu Tyr Thr Thr Ala Ile Asp Val Trp Ser Ala
                245                 250                 255

Gly Cys Val Leu Ala Glu Leu Leu Leu Gly Gln Pro Leu Phe Pro Gly

24

B13

Glu Ser Gly Val Asp Gln Leu Val His Ile Ile Lys Val Leu Gly Thr
        275                 280                 285

Pro Thr Arg Glu Glu Ile Lys Cys Met Asn Pro Asn Tyr Thr Glu Phe
    290                 295                 300

Lys Phe Pro Gln Ile Lys Ala His Pro Trp His Lys Ile Phe His Lys
305                 310                 315                 320

Arg Met Pro Pro Glu Ala Val Asp Leu Val Ser Arg Leu Leu Gln Tyr
                325                 330                 335

Ser Pro Asn Leu Arg Ser Ala Ala Leu Asp Thr Leu Val His Pro Phe
            340                 345                 350

Phe Asp Glu Leu Arg Asp Pro Asn Ala Arg Leu Pro Asn Gly Arg Phe
        355                 360                 365

Leu Pro Pro Ala Phe His Phe Lys Pro His Glu Leu Lys Gly Val Pro
    370                 375                 380

Leu Glu Met Val Ala Lys Leu Val Pro Glu His Ala Arg Lys Gln Cys
385                 390                 395                 400

Pro Trp Leu Gly Leu
            405


<210> 21
<211> 412
<212> PRT
<213> Medicago sativa

<400> 21
Met Met Ala Ser Gly Gly Val Ala Pro Ala Ser Gly Phe Ile Asp Lys
  1             5                 10                  15

Asn Ala Ser Ser Val Gly Val Glu Lys Leu Pro Glu Glu Met Asn Asp
            20                  25                  30

Met Lys Ile Arg Asp Asp Lys Glu Met Glu Ala Ala Thr Ile Val Asp
        35                  40                  45

Gly Asn Gly Thr Glu Thr Gly His Ile Ile Val Thr Thr Ile Gly Gly
    50                  55                  60

Lys Asn Gly Gln Pro Lys Gln Thr Ile Ser Tyr Met Ala Glu Arg Val
  65                  70                  75                  80

Val Gly His Gly Ser Phe Gly Val Val Phe Gln Ala Lys Cys Leu Glu
                85                  90                  95

Thr Gly Glu Thr Val Ala Ile Lys Lys Val Leu Gln Asp Lys Arg Tyr
            100                 105                 110

Lys Asn Arg Glu Leu Gln Thr Met Arg Leu Leu Asp His Pro Asn Val
        115                 120                 125

Val Ser Leu Lys His Cys Phe Phe Ser Thr Thr Glu Lys Asp Glu Leu
    130                 135                 140


25

B

Tyr Leu Asn Leu Val Leu Glu Tyr Val Pro Glu Thr Val Ser Arg Val
145              150              155              160

Ile Arg His Tyr Asn Lys Met Asn Gln Arg Met Pro Met Ile Tyr Val
              165              170              175

Lys Leu Tyr Ser Tyr Gln Ile Cys Arg Ala Leu Ala Tyr Ile His Asn
              180              185              190

Ser Ile Gly Val Cys His Arg Asp Ile Lys Pro Gln Asn Leu Leu Val
              195              200              205

Asn Pro His Thr His Gln Leu Lys Ile Cys Asp Phe Gly Ser Ala Lys
         210              215              220

Val Leu Val Lys Gly Glu Pro Asn Ile Ser Tyr Ile Cys Ser Arg Tyr
225              230              235              240

Tyr Arg Ala Pro Glu Leu Ile Phe Gly Ala Thr Glu Tyr Thr Thr Ala
              245              250              255

Ile Asp Ile Trp Ser Ala Gly Cys Val Leu Gly Glu Leu Leu Leu Gly
              260              265              270

Gln Pro Leu Phe Pro Gly Glu Ser Gly Val Asp Gln Leu Val Glu Ile
         275              280              285

Ile Lys Val Leu Gly Thr Pro Thr Arg Glu Glu Ile Lys Cys Met Asn
         290              295              300

Pro Asn Tyr Thr Glu Phe Lys Phe Pro Gln Ile Lys Ala His Pro Trp
305              310              315              320

His Lys Ile Phe His Lys Arg Met Pro Pro Glu Ala Val Asp Leu Val
              325              330              335

Ser Arg Leu Leu Gln Tyr Ser Pro Asn Leu Arg Ser Thr Ala Leu Glu
              340              345              350

Ala Leu Val His Pro Phe Tyr Asp Asp Val Arg Asp Pro Asn Thr Arg
         355              360              365

Leu Pro Asn Gly Arg Phe Leu Pro Pro Leu Phe Asn Phe Lys Val Asn
         370              375              380

Glu Leu Lys Gly Val Pro Ala Glu Met Leu Val Lys Leu Val Pro Pro
385              390              395              400

His Ala Arg Lys Gln Cys Ala Leu Phe Gly Ser Ser
              405              410

<210> 22
<211> 411
<212> PRT
<213> Medicago sativa

<400> 22
Met Ala Ser Val Gly Val Ala Pro Thr Ser Gly Phe Arg Glu Val Leu
  1              5              10              15

26

Gly Asp Gly Glu Ile Gly Val Asp Asp Ile Leu Pro Glu Glu Met Ser
         20              25             30

Asp Met Lys Ile Arg Asp Asp Arg Glu Met Glu Ala Thr Val Val Asp
       35            40             45

Gly Asn Gly Thr Glu Thr Gly His Ile Ile Val Thr Thr Ile Gly Gly
    50             55             60

Arg Asn Gly Gln Pro Lys Gln Thr Ile Ser Tyr Met Ala Glu Arg Val
65             70            75             80

Val Gly His Gly Ser Phe Gly Val Val Phe Gln Ala Lys Cys Leu Glu
         85            90             95

Thr Gly Glu Thr Val Ala Ile Lys Lys Val Leu Gln Asp Lys Arg Tyr
         100          105         110

Lys Asn Arg Glu Leu Gln Thr Met Arg Leu Leu Asp His Pro Asn Val
       115          120         125

Val Ser Leu Lys His Cys Phe Phe Ser Thr Thr Glu Lys Asp Glu Leu
    130            135            140

Tyr Leu Asn Leu Val Leu Glu Tyr Val Pro Glu Thr Val His Arg Val
145             150          155         160

Ile Lys His Tyr Ser Lys Leu Asn Gln Arg Met Pro Met Ile Tyr Val
         165          170         175

Lys Leu Tyr Thr Tyr Gln Ile Phe Arg Ala Leu Ser Tyr Ile His Arg
         180          185         190

Cys Ile Gly Val Cys His Arg Asp Ile Lys Pro Gln Asn Leu Leu Val
         195          200         205

Asn Pro His Thr His Gln Val Lys Leu Cys Asp Phe Gly Ser Ala Lys
    210            215          220

Val Leu Val Lys Gly Glu Pro Asn Ile Ser Tyr Ile Cys Ser Arg Tyr
225             230          235         240

Tyr Arg Ala Pro Glu Leu Ile Phe Gly Ala Thr Glu Tyr Thr Thr Ala
         245          250         255

Ile Asp Val Trp Ser Val Gly Cys Val Leu Ala Glu Leu Leu Leu Gly
         260          265         270

Gln Pro Leu Phe Pro Gly Glu Arg Gly Val Asp Gln Leu Val Glu Ile
       275          280         285

Ile Lys Val Leu Gly Thr Pro Thr Arg Glu Glu Ile Lys Cys Met Asn
    290            295          300

Pro Asn Tyr Thr Glu Phe Lys Phe Pro Gln Ile Lys Ala His Pro Trp
305             310          315         320

His Lys Ile Phe His Lys Arg Met Pro Ala Glu Ala Val Asp Leu Val
         325          330         335

Ser Arg Leu Leu Gln Tyr Ser Pro Asn Leu Arg Cys Gln Ala Leu Asp

B13

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               340                    345                    350
Cys Leu Thr His Pro Phe Phe Asp Glu Leu Arg Asp Pro Asn Ala Arg
        355                    360                    365

Leu Pro Thr Gly Arg Phe Leu Pro Pro Leu Phe Asn Phe Lys Pro His
        370                    375                    380

Glu Leu Lys Gly Val Pro Val Glu Thr Leu Met Lys Leu Val Pro Glu
385                    390                    395                    400

His Ala Arg Lys Gln Cys Pro Phe Leu Gly Leu
                405                    410

<210> 23
<211> 407
<212> PRT
<213> Arabidopsis thaliana

<400> 23
Met Ala Ser Leu Pro Leu Gly Pro Gln Pro His Ala Leu Ala Pro Pro
  1               5                  10                  15

Leu Gln Leu His Asp Gly Asp Ala Leu Lys Arg Arg Pro Glu Leu Asp
             20                  25                  30

Ser Asp Lys Glu Met Ser Ala Ala Val Ile Glu Gly Asn Asp Ala Val
         35                  40                  45

Thr Gly His Ile Ile Ser Thr Thr Ile Gly Gly Lys Asn Gly Glu Pro
     50                  55                  60

Lys Gln Thr Ile Ser Tyr Met Ala Glu Arg Val Val Gly Thr Gly Ser
 65                  70                  75                  80

Phe Gly Ile Val Phe Gln Ala Lys Cys Leu Glu Thr Gly Glu Ser Val
                 85                  90                  95

Ala Ile Lys Lys Val Leu Gln Asp Arg Arg Tyr Lys Asn Arg Glu Leu
            100                 105                 110

Gln Leu Met Arg Pro Met Asp His Pro Asn Val Ile Ser Leu Lys His
        115                 120                 125

Cys Phe Phe Ser Thr Thr Ser Arg Asp Glu Leu Phe Leu Asn Leu Val
    130                 135                 140

Met Glu Tyr Val Pro Glu Thr Leu Tyr Arg Val Leu Arg His Tyr Thr
145                 150                 155                 160

Ser Ser Asn Gln Arg Met Pro Ile Phe Tyr Val Lys Leu Tyr Thr Tyr
                165                 170                 175

Gln Ile Phe Arg Gly Leu Ala Tyr Ile His Thr Val Pro Gly Val Cys
            180                 185                 190

His Arg Asp Val Lys Pro Gln Asn Leu Leu Val Asp Pro Leu Thr His
        195                 200                 205

Gln Val Lys Leu Cys Asp Phe Gly Ser Ala Lys Val Leu Val Lys Gly
    210                 215                 220
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B

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Glu Pro Asn Ile Ser Tyr Ile Cys Ser Arg Tyr Tyr Arg Ala Pro Glu
225             230             235             240

Leu Ile Phe Gly Ala Thr Glu Tyr Thr Ala Ser Ile Asp Ile Trp Ser
            245             250             255

Ala Gly Cys Val Leu Ala Glu Leu Leu Leu Gly Gln Pro Leu Phe Pro
        260             265             270

Gly Glu Asn Ser Val Asp Gln Leu Val Glu Ile Ile Lys Val Leu Gly
        275             280             285

Thr Pro Thr Arg Glu Glu Ile Arg Cys Met Asn Pro Asn Tyr Thr Asp
    290             295             300

Phe Arg Phe Pro Gln Ile Lys Ala His Pro Trp His Lys Val Phe His
305             310             315             320

Lys Arg Met Pro Pro Glu Ala Ile Asp Leu Ala Ser Arg Leu Leu Gln
            325             330             335

Tyr Ser Pro Ser Leu Arg Cys Thr Ala Leu Glu Ala Cys Ala His Pro
        340             345             350

Phe Phe Asn Glu Leu Arg Glu Pro Asn Ala Arg Leu Pro Asn Gly Arg
        355             360             365

Pro Leu Pro Pro Leu Phe Asn Phe Lys Gln Glu Leu Gly Gly Ala Ser
    370             375             380

Met Glu Leu Ile Asn Arg Leu Ile Pro Glu His Val Arg Arg Gln Met
385             390             395             400

Ser Thr Gly Leu Gln Asn Ser
            405
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